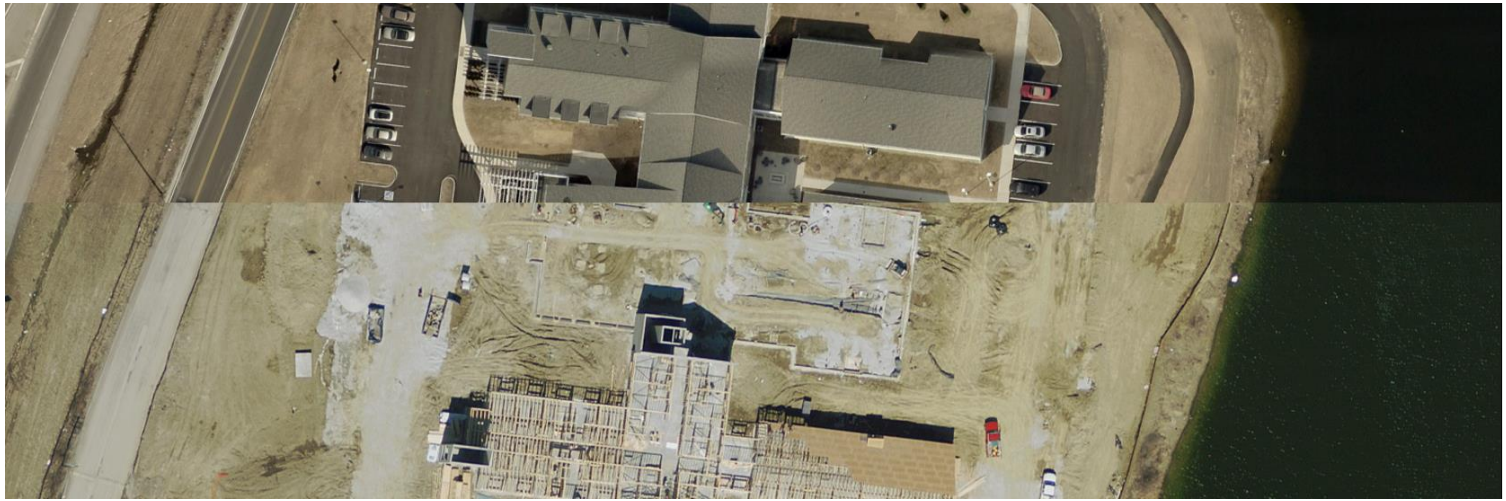

WOOLPERT



Building Mapping and Change Detection

9/19/2016

WOOLPERT

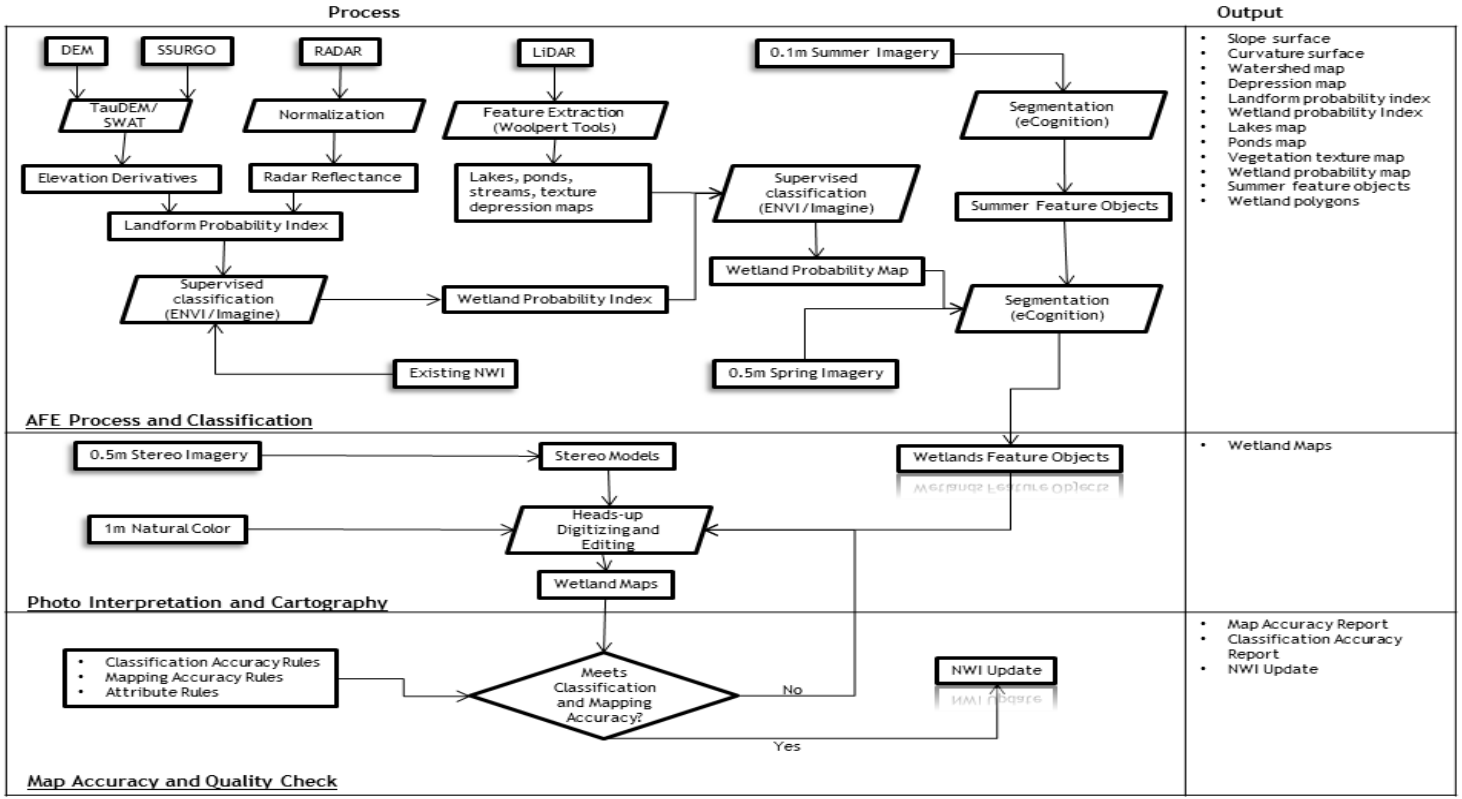
How to Map Buildings

- History
- In-house
- Specialized tools
- Professional Services

How to Map Buildings

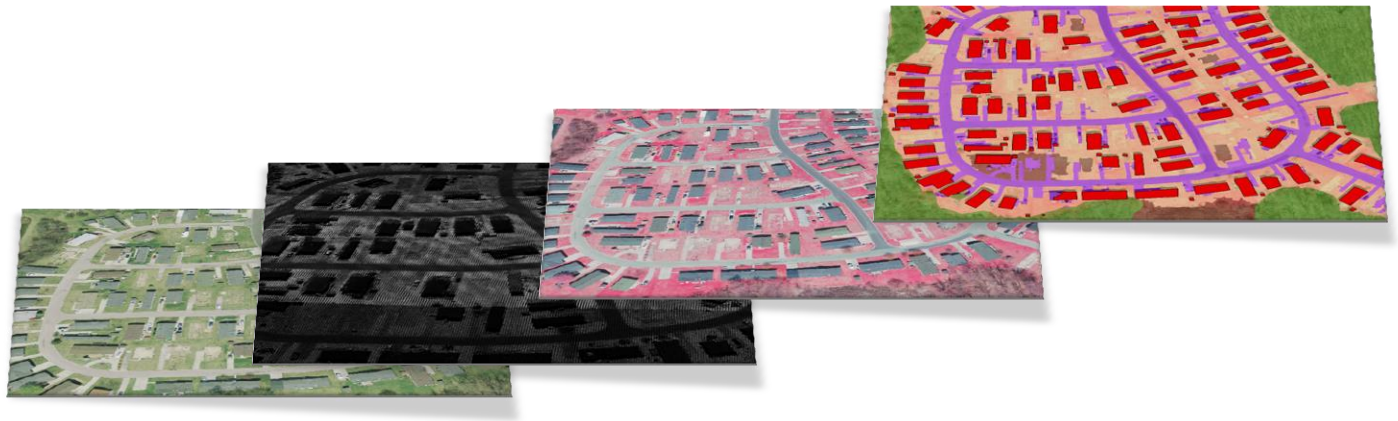
- Leveraging existing data
  - 2011/13 6/12 inch imagery
  - 2011/13 lidar
  - *2016-18 3/6/12 inch imagery
  - *2017-18 QL2 lidar

Feature Extraction Process



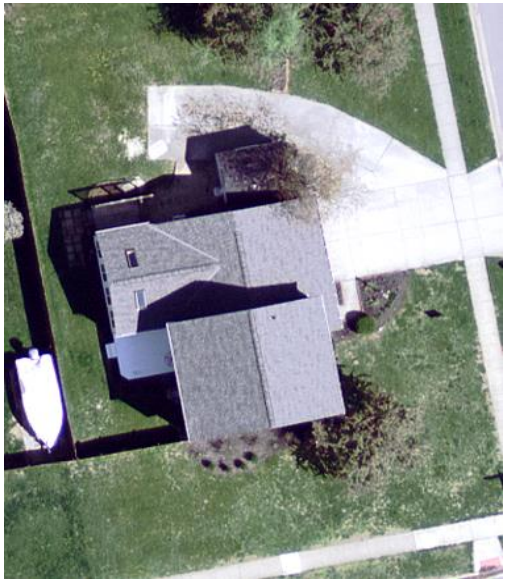
Feature Extraction

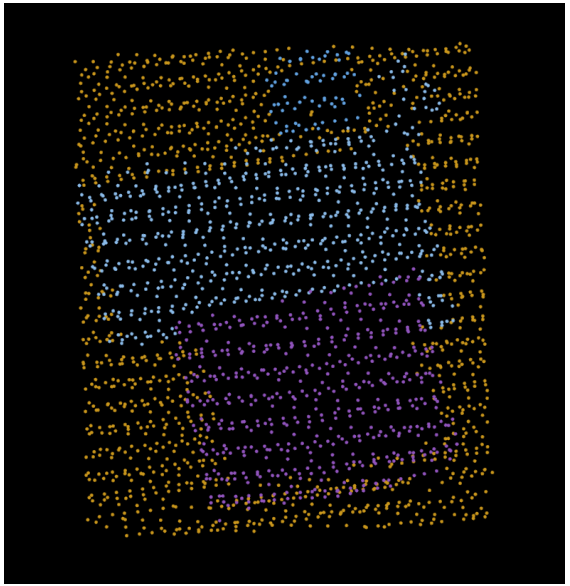
- Transforming data into information
- Data can be processed together (RGBIR + Z + intensity) or separately



Lidar

- Topology Determination
  - Plane detection by segmentation





Lidar

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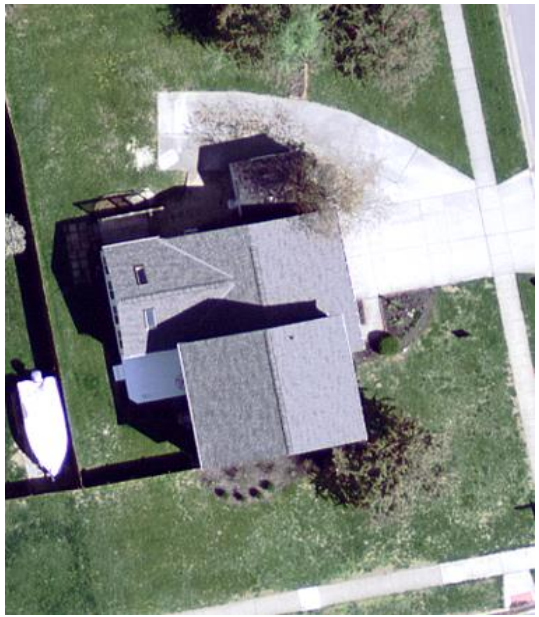

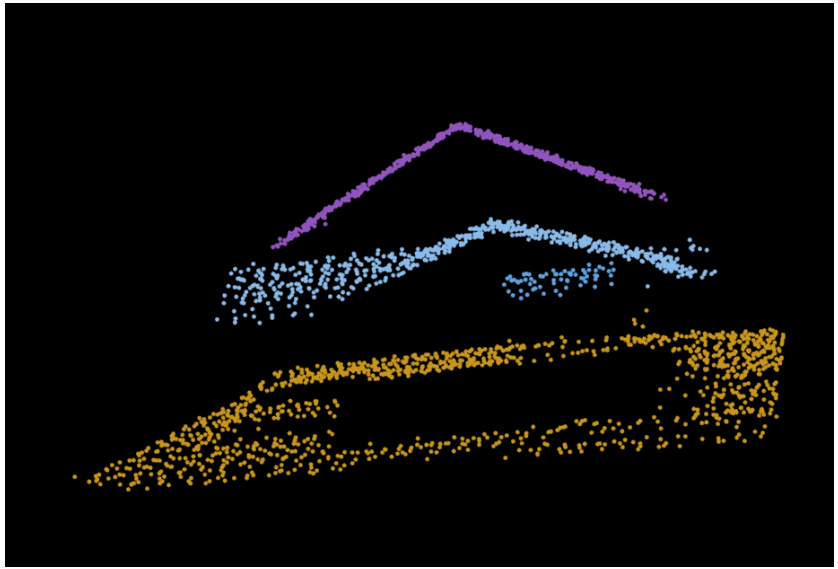

Lidar

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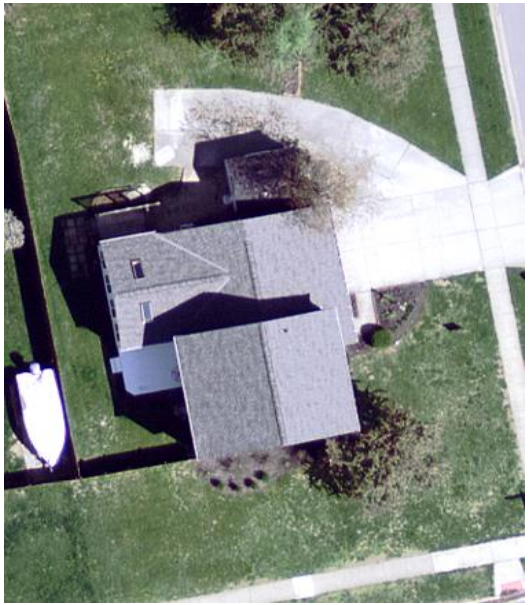
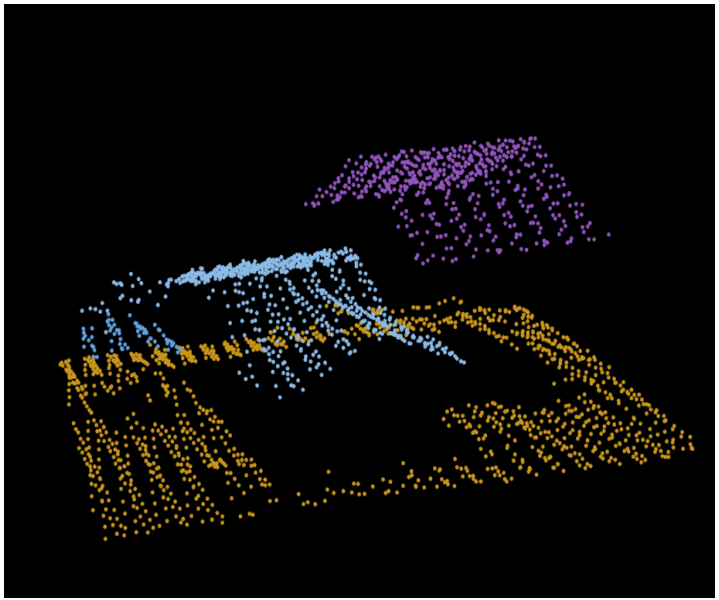
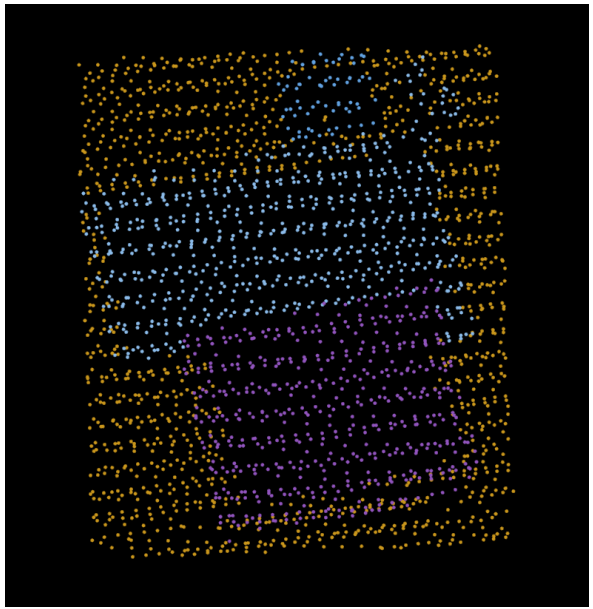




Lidar

- Polygon Generation
  - Plane detection by segmentation



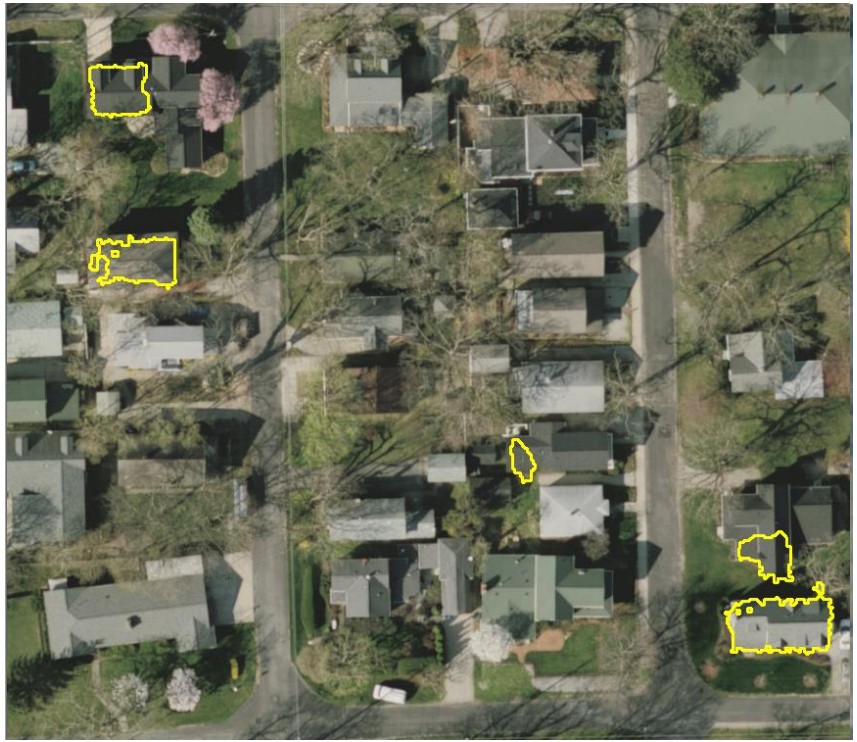
Results

Change Detection

Change Detection

- Multi-Criteria Evaluation of Probabilistic Representation (M-CEPR)
  - Hypothesize
  - Evaluate
  - Verify
  - Quantify
  - Classify (New, Removed, Replaced, Verified Changed, Possible Change, Unchanged, Unknown)
  - Assign
  - Compare and Review

M-CEPR

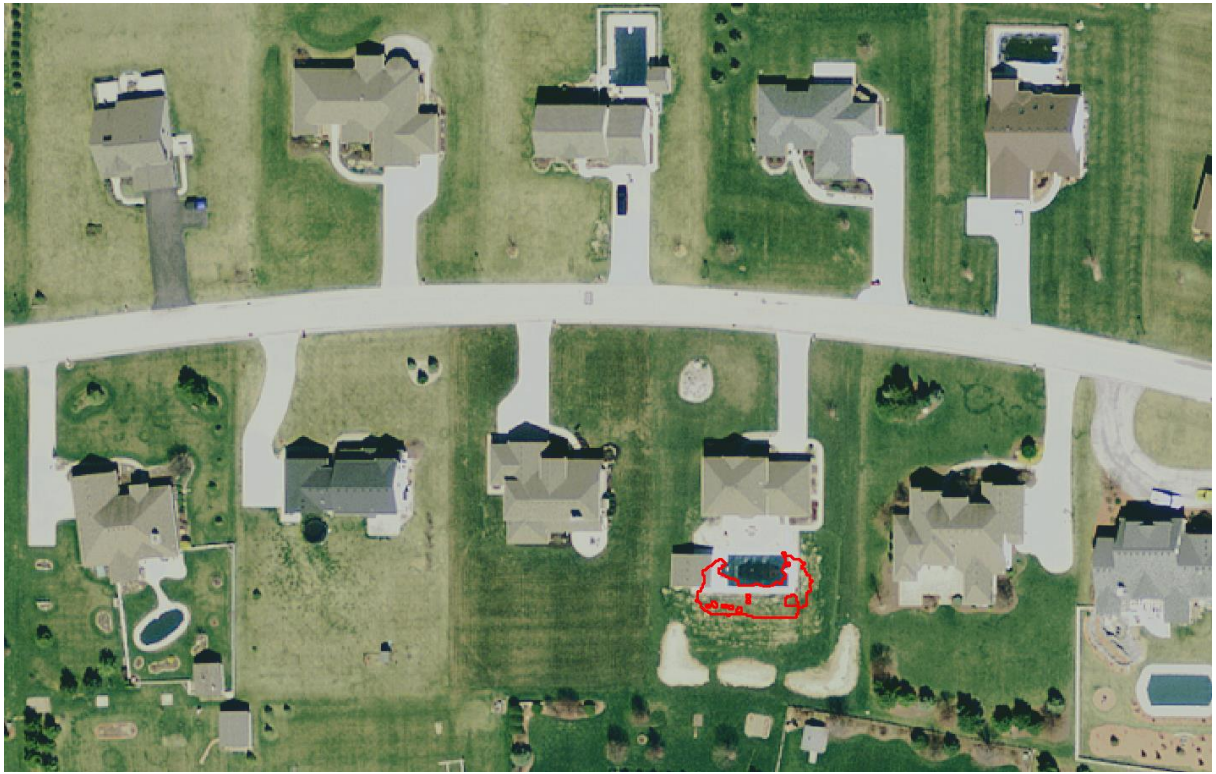


Change Detection

- New structure

Change Detection

- In-ground pool



Change Detection

- Possible change

Change Detection

- Possible Replacement

Change Detection

- New deck?

Change Detection

- 2006 - 2011

Change Detection

- Integration

Why?

- Reproducible
- Reduce field work
- Reduces manual edits at the office
- Simplifies the comparison process
- Leverages existing data!

Questions / Comments

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